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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,883	08/21/2003	Dae-Sik Kim	1293.1957	6836

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EXAMINER

SEVER, ANDREW T

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/644,883

**Applicant(s)**

KIM ET AL.

**Examiner**

Andrew T. Sever

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,9-23,26-28,30 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,9-23,26-28,30 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3, 4, 6, 9-23, 26-28, 30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker et al. (US 6,224,216) in view of Lambert (US 6,288,815 as previously provided to applicant) and Kruschwitz et al. (US 6,594,090 as previously provided to the applicant).

Parker teaches in figures 2 and 8 a projection system comprising:

Light emitting units (light sources which in figure 8 are LEDs of various colors)  
emitting light beams of different wavelengths;

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Optical fibers disposed between the light emitting units and a collimating lens (42) to respectively transmit the light beams (see figure 8 which shows the optical fibers labeled light pipes in figure 2)

A light valve (44) which receives the color beams and forms a color image by turning pixels on or off according to an input image signal.

Parker does not teach a scrolling unit having spirally arranged cylinder lens cells which scrolls the color beams when the scrolling unit is rotated. Such a scrolling unit is taught by Lambert in figure 7B, where Lambert teaches a cylindrical lens structure, which is spirally disposed on a disk (see column 11 lines 12-14). Although Lambert teaches only a single spiral lens in figure 7B in an alternative taught in lines 22-26 (not shown), Lambert teaches a plurality of lens arrays arranged on a single shaft. Further Lambert's single lens, meets applicant's claimed lens cells as the single lens forms more than one cell by inspection. Lambert also teaches in figure 3 (wherein in figure 7b the scrolling units 24 and 25 are replaced by the spiral lens cells), that first and second cylinder lenses (22 and 23) are disposed in the appropriate locations (see column 6 lines 41-53).

Lambert teaches in column 1 lines 25-40 that using a non-scanning system such as Parker's does not efficiently use the light valve and results in lower resolution as compared to a scanning system such as Lambert's. Lambert further teaches in column 5 lines 51 through column 6 line 29 that by providing a scrolling unit (scanning element) that has optical power, optical errors caused by the scanning function and by other parts of the projection device can be corrected; producing a better image with higher

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resolution. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to using a scrolling unit as taught by Lambert in the projection system of Parker to allow for more efficient use of the single modulator and potentially higher resolution images to be projected.

Parker in view of Lambert does not teach first and second fly-eye lenses, which receive the color beam transmitted by the scrolling unit, diverge the color beams, and transmit the color beams to the light valve. Kruschwitz teaches in figure 2 fly-eye lenses 42a and 42b. Kruschwitz teaches that the fly-eye lenses are provided after a scrolling unit for purposes to provide efficient, uniform illumination over the area of the light valve (see column 4 line 65 through column 5 line 15.) Accordingly since this is also the goal of Lambert (to provide efficient uniform illumination), it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kruschwitz's fly-eye lenses in the projection system and corresponding method of Parker in view of Lambert.

*With regards to applicant's claims 3 and 21:*

Kruschwitz teaches in column 5 relay lenses that are present but not labeled in Kruschwitz's drawings. Kruschwitz teaches that these are necessary to overlap the light exiting the fly-eye lenses and to give the light beams a rectangular area for illuminating the liquid crystal light valve (or other type of light valve), since light valves are generally rectangular in shape (including their pixels) it would have been obvious to one of

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ordinary skill in the art at the time the invention was made to use the relay lenses of Kruschwitz in the projection system and method of Parker in view of Lambert.

*With regards to applicant's claim 4:*

Parker teaches that the light units are LEDs (See abstract) Kruschwitz teaches in column 1 line 19-27 that lasers are also advantageous in projection systems.

*With regards to applicant's claim 6:*

Lens 42 of Parker is a collimating lens.

*With regards to applicant's claim 9:*

The light emitting units are LEDs (see abstract of Parker for example).

*With regards to applicant's claims 10 and 11:*

See column 5 lines 1-40 of Kruschwitz.

*With regards to applicant's claim 12-14:*

Lambert as described above teaches 2 cylindrical lens cells and in light of other embodiments such as figure 7c it would be obvious for it to include three or more cells since the other embodiments teach more than 2 cells to allow for efficient functioning and for each color light to be effectively scrolled (Since Parker specifies three colors, there would need be at least 3 lens cells.)

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*With regards to applicant's claims 15-18:*

As described by Lambert, the scrolling unit rotates at a constant speed in a direction and one of ordinary skill in the art would recognize that there is a direct relationship between that speed and the number of units (Lambert describes one such situation in column 11 lines 13-29.)

*With regards to applicant's claim 19:*

The scrolling unit as a hole can be considered a single optical element.

*With regards to applicant's claim 20:*

The colors of Parker are red, green, and blue (see figure 8)

*With regard to applicant's claims 22 and 23:*

See above, wherein the method of projecting an image using the projection system of Parker in view of Lambert and Kruschwitz and is obvious. (See MPEP 2112.02) With regards to claim 23, Parker utilizes a collimating lens and light pipe integrator to achieve the proper width of the light which would be present prior to the scrolling unit in the projection system of Parker in view of Lambert and Kruschwitz

*With regards to applicant's claim 26:*

See above wherein the method of projecting an image using the projection system of Parker in view of Lambert and Kruschwitz is obvious. (See MPEP 2112.02). The

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movement of the spiral lens cells simulates linear movement as it is taught by Lambert to be the equivalent of a linear system. The fly-eye lenses (Kruschwitz) and cylindrical lenses (Lambert) control the width of the emitted light beams and it is obvious that one of ordinary skill in the art at the time the invention was made would adjust these lenses such as to minimize light loss.

*With regards to applicant's claims 27, 28, and 30:*

See above.

*With regards to applicant's claim 34:*

See above wherein the color beam-focusing unit is the cylindrical lenses of Lambert and fly-eye lenses of Kruschwitz.

### ***Response to Arguments***

4. Applicant's arguments filed 3/02/2006 have been fully considered but they are not persuasive.

Applicant argues that Lambert fails to meet the claimed limitation of spirally arranged cylinder cells. Stating that Lambert, as acknowledged by the office, teaches only a single spiral lens. However applicant does not claim that the scrolling unit comprises of a plurality of cylindrical lens mounted on a single disk, rather applicant only claims cylindrical lens cells on a disk. Since by inspection Lambert clearly shows that the single



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lens forms what looks like to be multiple cells and in a different embodiment Lambert suggest using multiple lenses, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Parker in view of Lambert and Kruschwitz would in fact teach the claimed scrolling unit. Applicant's other arguments are based only on their first argument being correct which as just has been shown is incorrect. Accordingly all rejections have been repeated, modified as necessary to reflect applicant's amended claim language. Because of the amendment to the claims all claims are now rejected under Parker in view of Lambert and Kruschwitz. Applicant's amendments necessitated this and therefore the rejection has been made final.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "WB Perkey", with a long horizontal flourish extending to the right.

AS

**William Perkey**  
**Primary Examiner**